

DECISION MAKING OF BUY OR RENT A HOUSE



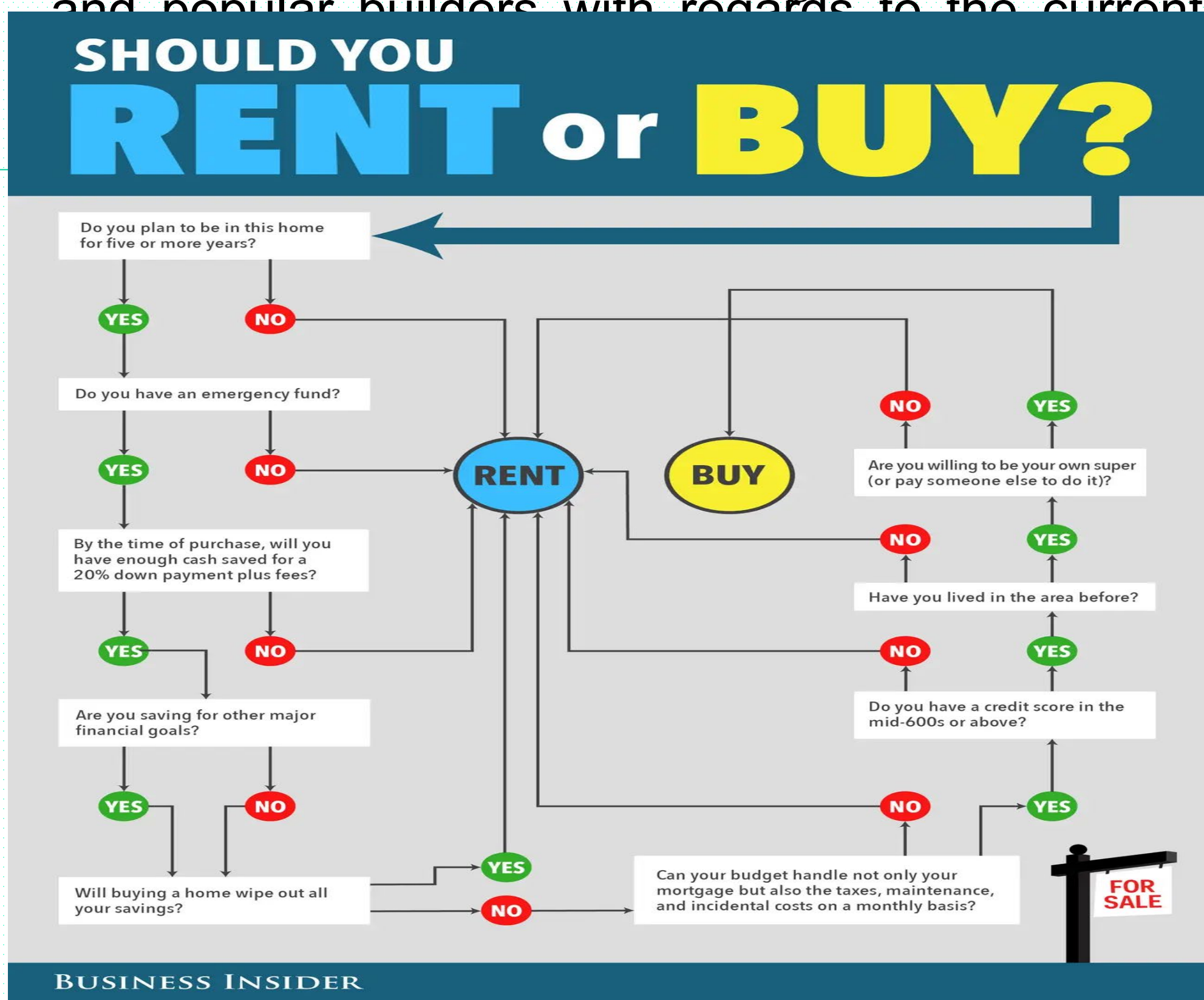
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1. ABSTRACT

- ❖ Need for shelter is a highest priority for any human in the world, from multi-billionaires to poverty-stricken people of the world. There are various options to get a shelter in this modern era. The focus of the current study is chosen whether to lease a house or own a house with specific benefits and disadvantages of each options and make a wise decision.
- ❖ The current research paper investigates various considerations and alternatives to make a possible decision between buy or rent a house. Throughout this research paper, I will use the gathered information and crucial data inputs from different people and sectors, popular interviews that influence our decisions such as real estate agencies, financial institutions, and popular builders with regards to the current

Figure A: Flow Chart



2. FACTS AND ASSEMENT

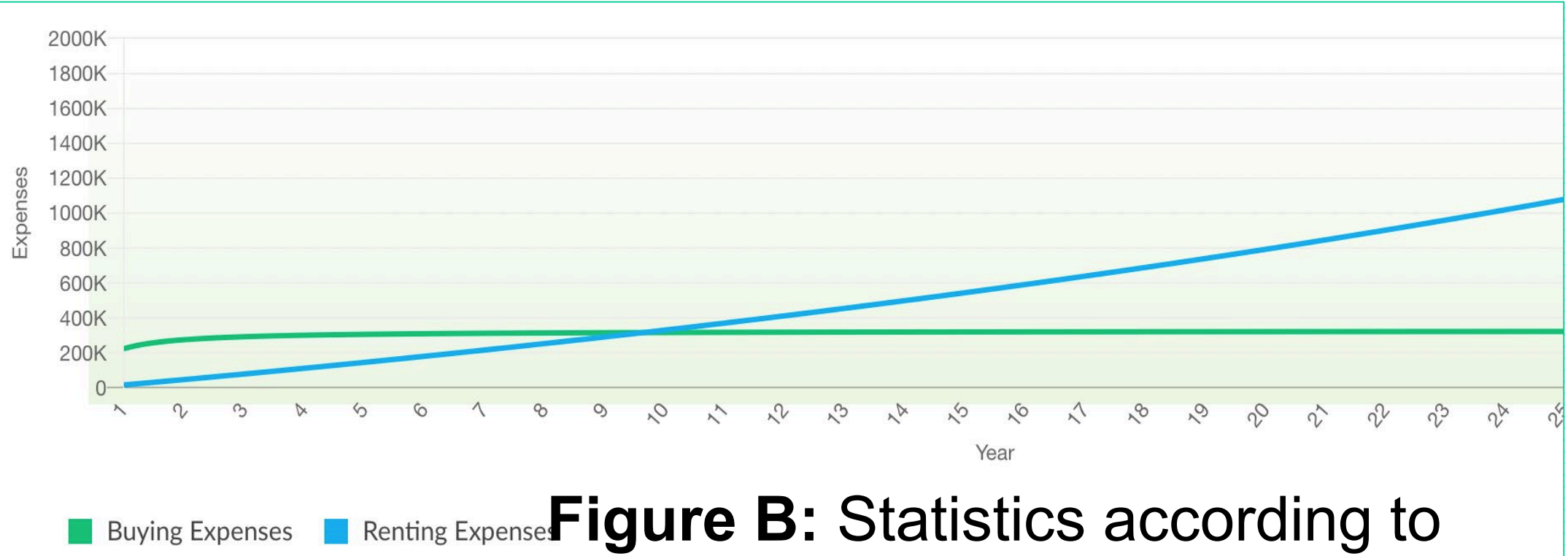


Figure B: Statistics according to agencies

Rent

- ❖ 74% of renters in our survey would prefer owning a home if they could afford it.
- ❖ 60% of renters reported that they like renting because they don't have to worry about maintenance.
- ❖ 55% of renters reported being satisfied or very satisfied with renting their home.

Buy

- ❖ 59% of first-time homeowners mentioned that building equity in their home was one of their favourite things about buying a home.
- ❖ 58% of first-time homeowners compared financing offers to get the best deal on buying their own home.
- ❖ 86% of first-time homeowners reported being satisfied or very satisfied with their decision to buy their own home.

Overall, we can see from Figure B, buying house has more expenses in the initial years, over the years it will decrease gradually whereas it is contrast in the case of renting a house.

3.1 Decision Tree Model

The purpose of this section is to provide a brief regarding decision tree methodology implementation to decide buy or rent by using different tree nodes such as property tax, insurance, rent appreciation, general application, buying and selling closings cost, renovations, home repairs, tax on capitals, interest rates and time duration.

$$i(s,v) = i(v) - p(vl) i(vl) - p(vr) i(vr)$$

where $p(vl)$ $p(vr)$ probabilities of a case going into nodes vl to vr , $i(vl)$ and $i(vr)$ represent the impurity measures. s and v are the parents of all the child nodes i.e. either buy or rent. Child nodes are different factors mentioned in the 3.1 first paragraph. 3.2 section

4. Conclusion and D shows the the outcomes of the the nodes for single intervals.

There are many factors to buy or rent a private property, it is depending on indivial constraints and preferences, which is subjective. However, as per our research by decision tree algorithm calculation determines the which is profitable at the end of certain time durations. Based on these observations, for long run buying a house is more profitable than the renting a house.

3.2 Decision Tree Model Outputs

Your cost breakdown	RENT	BUY
Monthly cost	\$1,172	\$769
Total cost	\$281,266	\$184,466

Figure C: Decision Tree Outputs

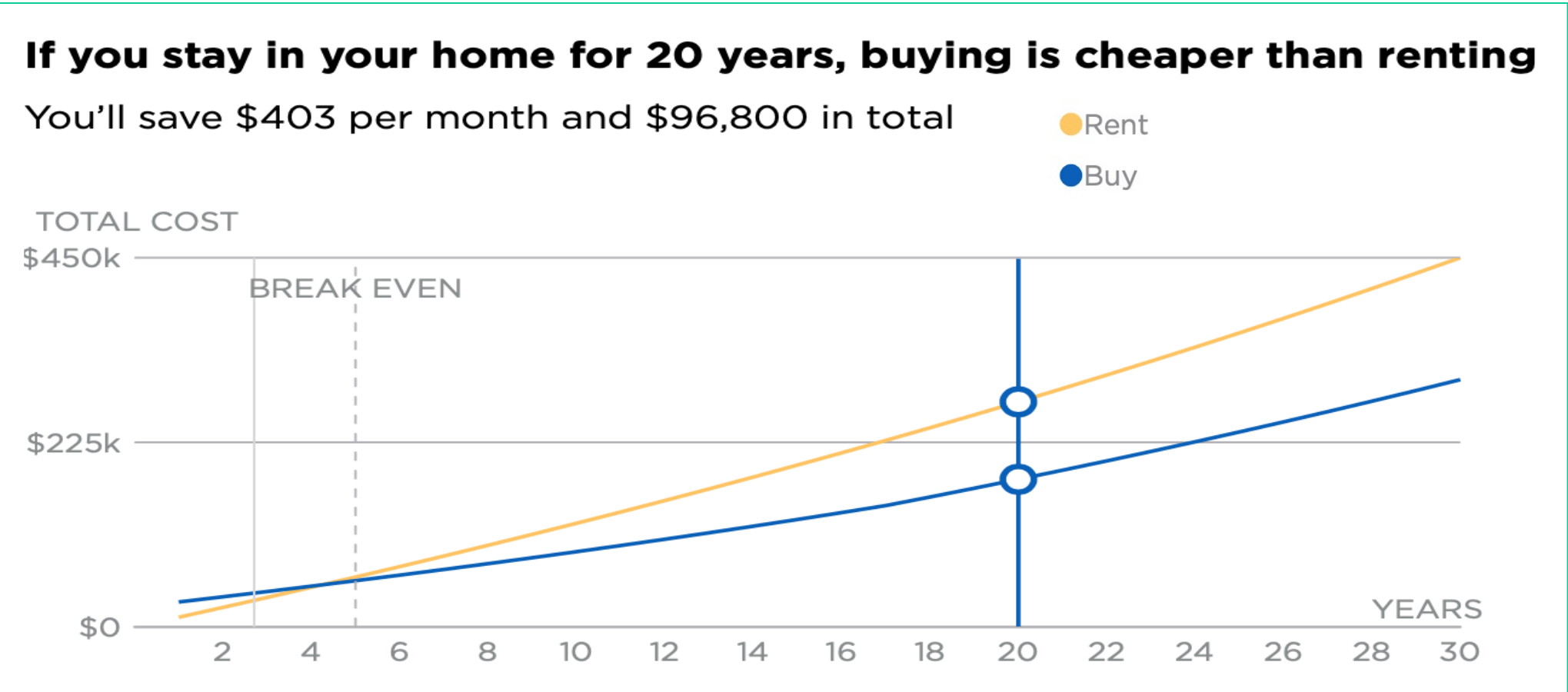


Figure D: Decision Tree Model Output